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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,871	03/16/2007	Yasutaka Wakabayashi	1248-0814PUS1	1766

2292 7590 05/06/2010
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EXAMINER	
BRAY, STEPHEN A	
ART UNIT	PAPER NUMBER
2629	

NOTIFICATION DATE	DELIVERY MODE
05/06/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/550,871	WAKABAYASHI ET AL.	
	Examiner	Art Unit	
	STEPHEN A. BRAY	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22 and 25-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22, 25-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

In an amendment dated, 1/13/2010, the Applicant amended claims 1, 8, 20, 25, 35, 38, and 40. Currently claims 1-22, 25-41 are pending.

Response to Arguments

1. Applicant's arguments with respect to claims 1-22, 25-41 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 8-9, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) in view of Skene et al (US 2003/0069616) and Conway et al (US 6,149,283).

Regarding claim 1, *Yoksza et al* discloses a display device for displaying an image by using light of a light emitter (Claim 18 and Figure 3B of *Yoksza et al* disclose a display device for displaying images which is composed of a plurality of LEDs.).

Yoksza et al fails to teach wherein the light emitter emits light having such a wavelength that affects a biorhythm, and

Skene et al discloses wherein the light emitter emits light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject. Claim 14 of *Skene et al* discloses that light having a wavelength of 452-454 nm is used to adjust the biorhythm of a human subject.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the display device taught by *Yoksza et al* with the teachings of *Skene et al* in order to form a display device which can be used to treat various diseases, including biological rhythm imbalances, using emitted light waves.

Yoksza et al and *Skene et al* fail to teach that an intensity of the light having the wavelength which affects the biorhythm is increased or decreased relative to an input

video signal at a higher rate than an intensity of light having another wavelength that has no affect on biorhythm.

Conway et al teaches that an intensity of the light having the wavelength which affects the biorhythm is increased or decreased relative to an input video signal at a higher rate than an intensity of light having another wavelength that has no affect on biorhythm (Column 3, lines 47-60 and Figure 3B of *Yoksza et al* disclose supplying a data signal, i.e. an input video signal, to a LED module 10, wherein a plurality of the LED modules make up a large-scale display 100, where the supplied data signal is used to generate the letter E on the display 100. Column 4, line 66 through Column 5, line 17 of *Conway et al* discloses a lighting device 10 which can generate a color with a specific primary wavelength by individually adjusting the power supplied to each of a red set of LEDs, a blue set of LEDs, and a green set of LEDs. Therefore if the user wants the light emitted to have a primary wavelength of 450 to 490 nm, i.e. a blue light, then power supplied to the blue LED set would be much greater than the power supplied to the red LED set and the green LED set. If the input video signal being supplied to the lighting element 10 is an on/off signal, then the intensity of light having a wavelength which affects the biorhythm, i.e. the blue LED set, would increase or decrease relative to the input signal at a higher rate than the intensity of light having another wavelength, i.e. the red and green sets of LEDs, since the intensity of light being emitted by the blue LED set is higher than the intensity of light being emitted by the red and green LED sets.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Conway et al* in order to form a display device in which the light emitter emits light of a desired color with a uniform distribution.

Regarding claim 8, *Yoksza et al* as modified above discloses a display device comprising an image display section for displaying an image, the image display section including pixels each of which has a plurality of light emitters (Claim 18 and Figure 3B of *Yoksza et al* disclose a display device 100 for displaying images which is composed of a plurality of LEDs, where each LED module 10 represents a single pixel in the display device 100.), wherein:

the plurality of light emitters include a first light emitter for emitting light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and Claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject. Claim 14 of *Skene et al* discloses that light having a wavelength of 452-454 nm is used to adjust the biorhythm of a human subject.), and

a characteristic of a luminous intensity of the first light emitter with respect to a video signal inputted into the image display section is switched, so that an amount of light of the first light emitter is increased or decreased at a higher rate than another light emitter for emitting light having another wavelength that has no affect on biorhythm (Column 3, lines 47-60 and Figure 3B of *Yoksza et al* disclose supplying a data signal,

i.e. an input video signal, to a LED module 10, wherein a plurality of the LED modules make up a large-scale display 100, where the supplied data signal is used to generate the letter E on the display 100. Column 4, line 66 through Column 5, line 17 of *Conway et al* discloses a lighting device 10 which can generate a color with a specific primary wavelength by individually adjusting the power supplied to each of a red set of LEDs, a blue set of LEDs, and a green set of LEDs. Therefore if the user wants the light emitted to have a primary wavelength of 450 to 490 nm, i.e. a blue light, then power supplied to the blue LED set would be much greater than the power supplied to the red LED set and the green LED set. If the input video signal being supplied to the lighting element 10 is an on/off signal, then the intensity of light having a wavelength which affects the biorhythm, i.e. the blue LED set, would increase or decrease relative to the input signal at a higher rate than the intensity of light having another wavelength, i.e. the red and green sets of LEDs, since the intensity of light being emitted by the blue LED set is higher than the intensity of light being emitted by the red and green LED sets.).

Regarding claim 9, *Yoksza et al* as modified above discloses the display device according to claim 8, wherein the light having the wavelength which affects the biorhythm is light having a dominant wavelength of 445 nm to 480 nm (Claims 13-14 of *Skene et al* discloses the wavelength of light for suppressing melatonin production in a human subject should have a wavelength of less than 480 nm, or more precisely, a wavelength between 452-454 nm.).

Regarding claim 38, *Yoksza et al* as modified above discloses a method for using a display device which displays an image by using light of a light emitter (Claim 18 and Figure 3B of *Yoksza et al* disclose a display device for displaying images which is composed of a plurality of LEDs.), wherein:

the light emitter emits light having a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and Claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject. Claim 14 of *Skene et al* discloses that light having a wavelength of 452-454 nm is used to adjust the biorhythm of a human subject.), and

controlling an intensity of the light having the wavelength that affects a biorhythm so that the biorhythm is regulated while the image is displayed on a display surface of the display device using the light having the wavelength that affects a biorhythm (Column 3, lines 47-60 and Figure 3B of *Yoksza et al* disclose supplying a data signal, i.e. an input video signal, to a LED module 10, wherein a plurality of the LED modules make up a large-scale display 100, where the supplied data signal is used to generate the letter E on the display 100. Column 4, line 66 through Column 5, line 17 of *Conway et al* discloses a lighting device 10 which can generate a color with a specific primary wavelength by individually adjusting the power supplied to each of a red set of LEDs, a blue set of LEDs, and a green set of LEDs. Therefore if the user wants the light emitted to have a primary wavelength of 450 to 490 nm, i.e. a blue light, then power supplied to the blue LED set would be much greater than the power supplied to the red LED set

and the green LED set. The intensity of the light emitted by the light emitter can be controlled by the user by individually adjusting the amount of power supplied to each of the LEDs. If an input video signal being supplied to the lighting element 10 is an on/off signal, then the intensity of light having a wavelength which affects the biorhythm, i.e. the blue LED set, would increase or decrease relative to the input signal at a higher rate than the intensity of light having another wavelength, i.e. the red and green sets of LEDs, since the intensity of light being emitted by the blue LED set is higher than the intensity of light being emitted by the red and green LED sets.).

5. Claims 2-4, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) and Skene et al (US 2003/0069616) and Conway et al (US 6,149,283) as applied to claims 1 and 8 above, and further in view of Terman et al (US 5,589,741).

Regarding claim 2, *Yoksza et al* as modified above discloses the display device according to claim 1.

Yoksza et al as modified above fails to teach wherein the intensity of the light having the wavelength is controlled based on time information.

Terman et al discloses wherein the intensity of the light having the wavelength is controlled based on time information (Figures 7A1 – 7D-8 of *Terman et al* discloses adjusting the intensity of light-emitting lamps based on time information, i.e. time of day.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Terman et al* in order to form a display device which operates to regulate the circadian rhythm of the user over a cycle period.

Regarding claim 3, *Yoksza et al* as modified above discloses the display device according to claim 1, wherein the intensity of the light having the wavelength is controlled based on user instruction information set by a user (Column 3, lines 6-56 of *Terman et al* discloses having the user input information for controlling the intensity of the light-emitting lamps.).

Regarding claim 4, *Yoksza et al* as modified above discloses the display device according to claim 1.

wherein the intensity of the light having the wavelength is controlled based on contents information indicating what type of program the image is (Column 3, lines 6-56 of *Terman et al* discloses adjusting the intensity of the light-emitting lamps based upon the type of day and time of day and also to simulate various weather conditions.).

Regarding claim 10, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the first light emitter with respect to the video signal is switched based on time information (Figures 7A1 – 7D-8 of *Terman et al* discloses adjusting the intensity of light-emitting lamps based on time information, i.e. time of day.).

Regarding claim 11, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the first light emitter with respect to the video signal is switched based on user instruction information set by a user (Column 3, lines 6-56 of *Terman et al* discloses having the user input information for controlling the intensity of the light-emitting lamps.).

Regarding claim 12, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the first light emitter with respect to the video signal is switched based on contents information indicating what type of program the image is (Column 3, lines 6-56 of *Terman et al* discloses adjusting the intensity of the light-emitting lamps based upon the type of day and time of day and also to simulate various weather conditions.).

6. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) in view of Skene et al (US 2003/0069616) and Conway et al (US 6,149,283) as applied to claims 1 and 9 above, and further in view of Kerr et al (US 7,236,154).

Regarding claim 5, *Yoksza et al* as modified above discloses the display device according to claim 1.

Yoksza et al as modified above fails to teach wherein the intensity of the light having the wavelength is controlled based on ambient brightness.

Kerr et al discloses wherein the intensity of the light having the wavelength is controlled based on ambient brightness (The abstract of *Kerr et al* discloses adjusting

the brightness of a light source based on the measured level of light around the light source.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Kerr et al* in order to form a display device in which power consumption of the display device can be reduced.

Regarding claim 13, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein the characteristic of the luminous intensity of the first light emitter with respect to the video signal is switched based on ambient brightness (The abstract of *Kerr et al* discloses adjusting the brightness of a light source based on the measured level of light around the light source.).

7. Claims 6-7, 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) in view of Skene et al (US 2003/0069616) and Conway et al (US 6,149,283) as applied to claims 1 and 9 above, and further in view of Stam et al (US 2002/0047624).

Regarding claim 6, *Yoksza et al* as modified above discloses the display device according to claim 1.

Yoksza et al as modified above fails to teach the display device comprising a complementary light emitter for emitting light whose color is substantially complementary to a color of the light having the wavelength.

Stam et al discloses the display device comprising a complementary light emitter for emitting light whose color is substantially complementary to a color of the light having the wavelength (Figure 7, Paragraph [0005], and Paragraph [0046] of *Stam et al* disclose that LED 701 emits a blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Stam et al* in order to form a display device in which the light emitters can emit light having a color different than the color of the light supplied by each of the two light emitters.

Regarding claim 7, *Yoksza et al* as modified above discloses the display device according to claim 6, wherein a luminous intensity of the complementary light emitter is controlled in accordance with the intensity of the light having the wavelength (Figure 7 and Paragraphs [0005], [0046]-[0047] of *Stam et al* disclose adjusting the proportion of light emitted by LED 701 and LED 702, i.e. intensity, proportionately with respect to each other in order to generate output light of the desired color.).

Regarding claim 14, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein the plurality of light emitters include a second light emitter for emitting red light and a third light emitter for emitting green light (Paragraph [0048] and Figure 9 of *Stam et al* discloses that the plurality of light emitters can include

LED 901 for emitting red light at 630 nm, LED 902 for emitting green light at 520 nm, and LED 903 for emitting blue light at 450 nm.).

Regarding claim 15, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein the plurality of light emitters include a complementary light emitter for emitting light whose color is substantially complementary to a color of light emitted by the first light emitter (Figure 7, Paragraph [0005], and Paragraph [0046] of *Stam et al* disclose that LED 701 emits a blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Regarding claim 16, *Yoksza et al* as modified above discloses the display device according to claim 15, wherein a luminous intensity of the complementary light emitter is controlled in accordance with the luminous intensity of the first light emitter (Figure 7 and Paragraphs [0005], [0046]-[0047] of *Stam et al* disclose adjusting the proportion of light emitted by LED 701 and LED 702, i.e. intensity, proportionately with respect to each other in order to generate output light of the desired color.).

Regarding claim 17, *Yoksza et al* as modified above discloses the display device according to claim 15, wherein the complementary light emitter is disposed next to the first light emitter (Figure 1 and 3A-3B of *Stam et al* disclose disposing the LEDs next to each other where the light that is emitted can be mixed to achieve the color desired by the user.).

Regarding claim 18, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein at least one of the plurality of light emitters is a

light-emitting diode (Paragraphs [0031] and [0047] – [0048] of *Stam et al* disclose that the light emitters are composed of light-emitting diodes (LEDs).).

Regarding claim 19, *Yoksza et al* as modified above discloses the display device according to claim 9, wherein at least one of the plurality of light emitters is an electroluminescent light emitter (The abstract of *Yoksza et al* discloses that the plurality of light emitters making up the display are LEDs.).

8. Claims 20-21, 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) in view of Hecker (US 5,426,879) and Skene et al (US 2003/0069616) and Conway et al (US 6,149,283).

Regarding claim 20, *Yoksza et al* discloses a display device emitter (Claim 18 and Figure 3B of *Yoksza et al* disclose a display device for displaying images which is composed of a plurality of LEDs.).

Yoksza et al fails to teach irradiating an image display section, which is for displaying an image, with light from a light source so as to cause the image display section to display the image.

Hecker teaches irradiating an image display section, which is for displaying an image, with light from a light source so as to cause the image display section to display the image (Figure 1 discloses a simulated window unit which has a light from a light source shining thorough a transparency 32, which has an indicia imprinted thereon representing an outdoor view.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made that the display device taught by *Shenderova et al* could be substituted for the fluorescent lighting fixtures used in the window simulation unit of *Hecker* to form a window unit which would additionally act to reduce the production of Melatonin in an individual looking at the window unit.

Yoksza et al and *Hecker* fails to teach the light source includes a first light emitter for emitting light having such a wavelength that affects a biorhythm.

Skene et al discloses the light source includes a first light emitter for emitting light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and claims 13-14 disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject. Claim 14 of *Skene et al* discloses that light having a wavelength of 452-454 nm is used to adjust the biorhythm of a human subject.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Skene et al* in order to form a display device which can be used to treat various diseases, including biological rhythm imbalances, using emitted light waves.

Yoksza et al and *Hecker* and *Skene et al* fail to teach that a luminous intensity of the first light emitter is switched so that an amount of light of the first light emitter is

increased or decreased at a higher rate than another light emitter for emitting light having another wavelength that has no affect on biorhythm.

Conway et al discloses that a luminous intensity of the first light emitter is switched so that an amount of light of the first light emitter is increased or decreased at a higher rate than another light emitter for emitting light having another wavelength that has no affect on biorhythm (Column 3, lines 47-60 and Figure 3B of *Yoksza et al* disclose supplying a data signal, i.e. an input video signal, to a LED module 10, wherein a plurality of the LED modules comprise individual pixels in a large-scale display 100, where the data signal is used to generate the letter E on the display 100. Column 4, line 66 through Column 5, line 17 of *Conway et al* discloses a lighting device 10 which can generate a color with a specific primary wavelength by individually adjusting the power supplied to each of a red set of LEDs, a blue set of LEDs, and a green set of LEDs. Therefore if the user wants the light emitted to have a primary wavelength of 450 to 490 nm, i.e. a blue light, then power supplied to the blue LED set would be much greater than the power supplied to the red LED set and the green LED set. If the input video signal being supplied to the lighting element 10 is an on/off signal, then the intensity of light having a wavelength which affects the biorhythm, i.e. the blue LED set, would increase or decrease relative to the input signal at a higher rate than the intensity of light having another wavelength, i.e. the red and green sets of LEDs, since the intensity of light being emitted by the blue LED set is higher than the intensity of light being emitted by the red and green LED sets.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Conway et al* in order to form a display device in which the light emitter emits light of a desired color with a uniform distribution.

Regarding claim 21, *Yoksza et al* as modified above discloses the display device according to Claim 39, wherein the light source includes a second light emitter for emitting red light and a third light emitter for emitting green light (Column 4, line 66 through Column 5, line 17 of *Conway et al* discloses a light source having a first LED set 23 for emitting blue light, a second LED set 19 for emitting red light and a third LED set 21 for emitting green light.).

Regarding claim 39, *Yoksza et al* as modified above discloses the display device according to claim 20, wherein the light having the wavelength which affects the biorhythm is light having a dominant wavelength of 445 nm to 480 nm (Claims 13-14 of *Skene et al* discloses the wavelength of light for suppressing melatonin production in a subject should have a wavelength of less than 480 nm, or more precisely, a wavelength between 452-454 nm.).

Regarding claim 40, *Yoksza et al* as modified above discloses a display device irradiating an image display section (Claim 18 and Figure 3B of *Yoksza et al* disclose a display device for displaying images which is composed of a plurality of LEDs.), which is for displaying an image, with light from a light source so as to cause the image display

section to display the image (Figure 1 of *Hecker* discloses a simulated window unit which has a light from a light source shining thorough a transparency 32, which has an indicia imprinted thereon representing an outdoor view.), wherein:

the light source consists of white light emitter for emitting white light and a first light emitter for emitting light having such a wavelength that affects a biorhythm (Figures 3A-3B and Column 3, lines 47-60 of *Yoksza et al* discloses that each LED module 10 is composed of a plurality of LEDs and that each of the LED modules 10 contains <u>at least</u> one pixel. Column 4, line 66 through Column 5, line 17 of *Conway et al* discloses that a light-emitter consisting of three sets of red, green, and blue LEDs, could be operated to generate white light if each of the three sets of LEDs are provided with equal power, or could be operated to generate a specific wavelength of light, i.e. blue light with a wavelength between 450 to 490 nm, if the set of blue LEDs is provided with power and the red and green sets of LEDs are not provided with power. Therefore LED module 10 could be designed to contain a first and a second pixel, wherein said first pixel is operated such that blue light is emitted from the pixel and the second pixel is operated such that white light is emitted from the second pixel.).

a luminous intensity of the first light emitter is switchable independently of the white light emitter that emits light having another wavelength that has no affect on biorhythm (Paragraphs [0003] and [0032] and claims 13-14 disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject. Claim 14 of *Skene et al* discloses that light having a wavelength of 452-454 nm is used to adjust the biorhythm

of a human subject. Column 4, line 66 through Column 5, line 17 of *Conway et al* discloses that a color with a specific primary wavelength can be generated by individually adjusting the power supplied to each of the LED sets. Therefore if the user wants the first light emitter to emit light having a primary wavelength of 450 to 490 nm, i.e. a blue light, then power supplied to the blue LED would be greater than the power supplied to the other two LED sets. For the light-emitter to act as a white light emitter, then each of set of red, green, and blue LEDs would be supplied with the same amount of power to generate white light. Therefore the light source could be made up a plurality of the same type of light-emitters where a first group of light-emitters would operate as white light emitters for emitting white light and a second group of light-emitters would operate as first light emitters for emitting light with a wavelength that affects a biorhythm. Column 4, line 66 through Column 5, line 17 of *Conway et al* also discloses that the light-emitters operating as white light emitters would be controlled independently from the light-emitters operating to output a specific wavelength of light, as each of the sets of LEDs would not receive the same amount of power.).

Regarding claim 41, *Yoksza et al* as modified above discloses the display device according to claim 40, wherein the light having the wavelength which affects the biorhythm is light having a dominant wavelength of 445 nm to 480 nm (Claims 13-14 of *Skene et al* discloses the wavelength of light for suppressing melatonin production in a subject should have a wavelength of less than 480 nm, or more precisely, a wavelength between 452-454 nm.).

9. Claims 22, 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) and Hecker (US 5,426,879) and Skene et al (US 2003/0069616) and Conway et al (US 6,149,283) as applied to claim 39 above, and further in view of Stam et al (US 2002/0047624).

Regarding claim 22, *Yoksza et al* as modified above discloses the display device according to claim 39.

Yoksza et al as modified above fails to teach wherein the light source includes a white light emitter for emitting white light.

Stam et al discloses wherein the light source includes a white light emitter for emitting white light (Paragraph [0005] of *Stan et al* discloses a white light can be produced by mixing the emissions of an amber LED and a blue-green LED. Figures 3A-3B and Column 3, lines 47-60 of *Yoksza et al* discloses that each LED module 10 is composed of a plurality of LEDs and that each of the LED modules 10 contains at least one pixel. Therefore the white light emitter could be formed by having a second pixel inside of the LED module, wherein said second pixel is composed of at least two LEDs which emit light which when combined together is outputted as white light.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Stam et al* in order to form a display device in which the light emitters can emit light having a color different than the color of the light supplied by each of the two light emitters.

Regarding claim 25, *Yoksza et al* as modified above discloses the display device according to any one of claim 39, comprising a complementary light emitter for emitting light whose color is complementary to a color of light emitted by the first light emitter (Figure 7, Paragraph [0005], and Paragraph [0046] of *Stam et al* disclose that LED 701 emits a blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Regarding claim 26, *Yoksza et al* as modified above discloses the display device according to claim 25, wherein a luminous intensity of the complementary light emitter is controlled in accordance with the luminous intensity of the first light emitter (Figure 7 and Paragraphs [0005], [0046]-[0047] of *Stam et al* disclose adjusting the proportion of light emitted by LED 701 and LED 702, i.e. intensity, proportionately with respect to each other in order to generate output light of the desired color.).

Regarding claim 27, *Yoksza et al* as modified above discloses the display device according to claim 25, wherein the complementary light emitter is disposed next to the first light emitter (Figure 1 and 3A-3B of *Stam et al* disclose disposing the LEDs next to each other where the light that is emitted can be mixed to achieve the color desired by the user.).

Regarding claim 28, *Yoksza et al* as modified above discloses the display device according to claim 39, comprising a phosphor for emitting light whose color is substantially complementary to a color of light emitted by the first light emitter (Figure 7, Paragraph [0005], and Paragraph [0046] of *Stam et al* disclose that LED 701 emits a

blue-green light at ~483 nm and LED 702 emits an amber light at ~584 nm wherein the combination of the amber light and the blue-green light can be used to create white light.).

Regarding claim 29, *Yoksza et al* as modified above discloses the display device according to claim 39, wherein at least one of the light emitters of the light source is a light-emitting diode (Paragraphs [0031] and [0047] – [0048] of *Stam et al* disclose that the light emitters are composed of light-emitting diodes (LEDs).).

Regarding claim 30, *Yoksza et al* as modified above discloses the display device according to claim 39, wherein at least one of the light emitters of the light source is an electroluminescent light emitter (The abstract of *Yoksza et al* discloses that the plurality of light emitters making up the display are LEDs.).

10. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) and Hecker (US 5,426,879) and Skene et al (US 2003/0069616) and Conway et al (US 6,149,283) as applied to claim 39 above, and further in view of Terman et al (US 5,589,741).

Regarding claim 31, *Yoksza et al* as modified above discloses the display device according to claim 39.

Yoksza et al as modified above fails to teach wherein the luminous intensity of the first light emitter is controlled based on time information.

Terman et al discloses wherein the luminous intensity of the first light emitter is controlled based on time information (Figures 7A1 – 7D-8 of *Terman et al* discloses

adjusting the intensity of light-emitting lamps based on time information, i.e. time of day.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Terman et al* in order to form a display device which operates to regulate the circadian rhythm of the user over a cycle period.

Regarding claim 32, *Yoksza et al* as modified above discloses the display device according to claim 39, wherein the luminous intensity of the first light emitter is controlled based on user instruction information set by a user (Column 3, lines 6-56 of *Terman et al* discloses having the user input information for controlling the intensity of the light-emitting lamps.).

Regarding claim 33, *Yoksza et al* as modified above discloses the display device according to claim 39, wherein the luminous intensity of the first light emitter is controlled based on contents information indicating what type of program the image is (Column 3, lines 6-56 of *Terman et al* discloses adjusting the intensity of the light-emitting lamps based upon the type of day and time of day and also to simulate various weather conditions.).

11. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) and Hecker (US 5,426,879) and Skene et al (US 2003/0069616) and Conway et al (US 6,149,283) as applied to claim 39 above, and further in view of Kerr et al (US 7,236,154).

Regarding claim 34, *Yoksza et al* as modified above discloses the display device according to claim 39.

Yoksza et al as modified above fails to teach wherein the luminous intensity of the first light emitter is controlled based on ambient brightness.

Kerr et al discloses wherein the luminous intensity of the first light emitter is controlled based on ambient brightness (The abstract of *Kerr et al* discloses adjusting the brightness of a light source based on the measured level of light around the light source.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Kerr et al* in order to form a display device in which power consumption of the display device can be reduced.

12. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) in view of Hecker (US 5,426,879) and Terahara et al (US 2003/0016432).

Regarding claim 35, *Yoksza et al* discloses a display device (Claim 18 and Figure 3B of *Yoksza et al* disclose a display device for displaying images which is composed of a plurality of LEDs.).

Yoksza et al fails to teach irradiating an image display section, which is for displaying an image, with light from a light source so as to cause the image display section to display the image.

Hecker discloses irradiating an image display section, which is for displaying an image, with light from a light source so as to cause the image display section to display the image (Figure 1 of *Hecker* discloses a simulated window unit which has a light from a light source shining thorough a transparency 32, which has an indicia imprinted thereon representing an outdoor view.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made that the display device taught by *Yoksza et al* could be substituted for the fluorescent lighting fixtures used in the window simulation unit of *Hecker* to form a window unit which would additionally act to reduce the production of Melatonin in an individual looking at the window unit.

Yoksza et al as modified above fails to teach a transmittance controlling means for controlling transmittance in a wavelength band of 445 nm to 480 nm,

a control means for controlling the transmittance controlling means for causing an amount of the light from the light source being passed by the transmittance means to change based on the light wavelength, so that the image display section is irradiated with the light from the transmittance control means.

Terahara et al discloses a transmittance controlling means for controlling transmittance in a wavelength band of 445 nm to 480 nm (Claim 1 of *Terahara et al* discloses having a filter for filtering a light having a controllable transmittance, where the filter has a fixed transmittance at a specific wavelength. Paragraphs [0010] and [0012] of *Terahara et al* also discloses having an optical band pass filter which operates to

allow a center wavelength in a transmission band, i.e. wavelength band, to pass through said filter.),

a control means for controlling the transmittance controlling means for causing an amount of the light from the light source being passed by the transmittance means to change based on the light wavelength, so that the image display section is irradiated with the light from the transmittance control means (Claim 1 of *Terahara et al* discloses having a filter for filtering a light with a controllable transmittance, where a controller controls the amount of transmittance, i.e. amount of light passed through the filter, at a specific wavelength.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Terahara et al* in order to form a display device in which the brightness and color of light outputted from the light source can be accurately and reliably obtained.

13. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoksza et al (US 5,410,328) in view of Skene et al (US 2003/0069616) and Terman et al (US 5,589,741).

Regarding claim 36, *Yoksza et al* discloses a display device for displaying an image by using light of a light emitter (Claim 18 and Figure 3B of *Yoksza et al* disclose a display device for displaying images which is composed of a plurality of LEDs.).

Yoksza et al fails to teach the light emitter emits light having such a wavelength that affects a biorhythm.

Skene et al discloses wherein the light emitter emits light having such a wavelength that affects a biorhythm (Paragraphs [0003] and [0032] and Claims 13-14 of *Skene et al* disclose having a light emitter emit light at a wavelength that affects the production of melatonin in the human subject, thus affecting the biorhythm of the human subject.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the display device taught by *Yoksza et al* with the teachings of *Skene et al* in order to form a display device which can be used to treat various diseases, including biological rhythm imbalances, using emitted light waves.

Yoksza et al and *Skene et al* fail to teach wherein an intensity of the light having the wavelength is changed by selecting on a user's instruction a target control pattern from among a plurality of control patterns of controlling the intensity of the light having the wavelength, the plurality of control patterns corresponding to times.

Terman et al discloses wherein an intensity of the light having the wavelength is changed by selecting on a user's instruction a target control pattern from among a plurality of control patterns of controlling the intensity of the light having the wavelength, the plurality of control patterns corresponding to times (Figures 7A-1 through 7D-8 and Column 1, lines 51-67 through Column 2, lines 1-29 and Column 3, lines 6-56 of *Terman et al* disclose choosing a control pattern from a plurality of control patterns for

adjusting the intensity of a plurality of light-emitting elements, where the control patterns correspond to luminance levels at a given time of day.).

Therefore it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the display device taught by *Yoksza et al* with the teachings of *Terman et al* in order to form a display device which operates to regulate the circadian rhythm of the user over a cycle period.

Regarding claim 37, *Yoksza et al* as modified above discloses the display device according to claim 36, wherein the plurality of control patterns are settable by the user (Column 3, lines 6-56 of *Terman et al* discloses having the user input information for controlling the intensity of the light-emitting lamps.).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Figures 10A and 10B, as well as Column 1, lines 27-37 of *Gavish* (US 6,090,037) disclose having a system for modifying the biorhythmic activity of a human subject which includes providing an input video signal to a display to display a specific pattern which is then viewed by the human subject.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN A. BRAY whose telephone number is (571)270-7124. The examiner can normally be reached on Monday - Friday, 9:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMR AWAD can be reached on (571)272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN A BRAY/
Examiner, Art Unit 2629

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629

24 April 2010